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FLORAL COMPOSITION OF BIRGONJ NATIONAL PARK IN DINAJPUR DISTRICT, BANGLADESH

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Abstract

Floristic survey is conducted in Birgonj National Park (BNP) to investigate the floral composition of the park. The study represents an elementary taxonomic data on the species composition of all vascular flora of BNP. The result of this research shows that the park comprises 222 vascular plant species under 176 genera and 69 families. The Dicotyledons (Magnoliopsida), Monocotyledons (Liliopsida) and Pteridophytes represented by 182, 36 and 4 species respectively. About 45.0% of these species are herbs, 17.6% shrubs, 32.0% trees, and 5.4% climbers. The study reveals that Euphorbiaceae, Asteraceae, Fabaceae are the largest families with 13 species each, followed by Poaceae with 9 species, Acanthaceae with 08 species and Caesalpiniaceae with 08 species. On the other hand, *Solanum* and *Albizia* appeared as the largest genera with 4 species each.

Introduction

The Birgonj National Park (BNP) is located in Birgonj upazila under Dinajpur district. It is about 34.0 km north east from Dinajpur district headquarter. The park is situated between 25°50'12.98"N to 25°51'29.34"N and 88°39'31.17"E to 88°39'46.26"E. BNP covers an area of 168.56 hectare and it is under the jurisdiction of Thakurgaon Forest Range (Fig. 1). It is situated on the bank of the Punarvhaba river. It is a deciduous Sal (*Shorea robusta* Gartn.) forest under the Himalayan Piedmont Plain (SPAB, 2012). This is the 17th national park of Bangladesh, declared by Ministry of Environment, Forest and Climate Change in 2011 under the provision of Article 23 (3) of the Bangladesh Wild Life (Preservation) (Amendment) Act 1974. The average temperature of BNP ranges between 20.8ºC to 9.2ºC, rainfall is about 1632.0 mm per year and humidity is 75.8 percent. The

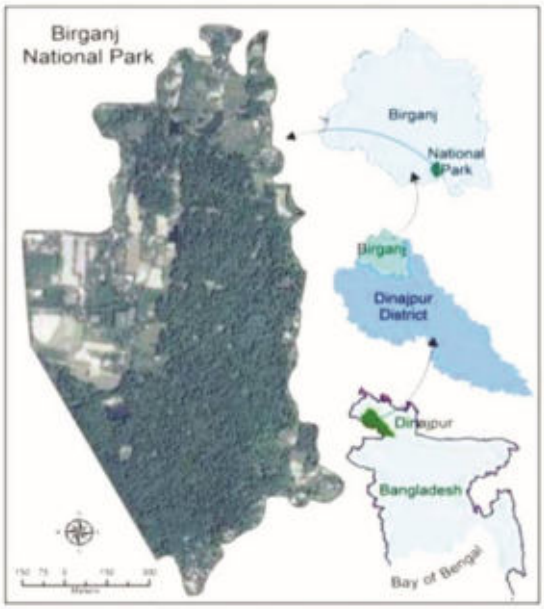

Fig. 1. Map of Birgonj National Park.

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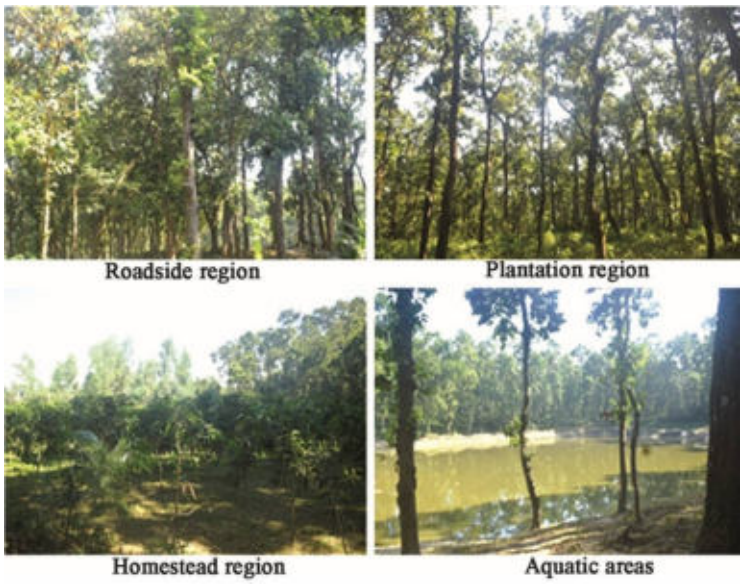
topography of the park is mostly medium lands (66%) and broad soil classification is mostly *doash* (54%) (BBS 2013).

In Bangladesh, floristic study of national park is a common trend due to the documentation of floristic diversity, management concerns of national parks and conservation actions. A number of floristic studies have been done in different national parks so far *viz*. S.N. Uddin and N. Rahman 2021; M.H. Rashid *et al*., 2019; N. Rahman *et al*., 2018; M.A. Rahaman *et al.,* 2017; S.N. Uddin *et al*., 2015; M.K. Arefin *et al*., 2011; M.Z. Uddin and M.A. Hassan, 2010; S.H. Rashid and M.M.K. Mia, 2001; S.B. Uddin and M.A. Rahman, 1999; S.N. Uddin *et al*., 1998; M.O. Rahman and M.A. Hassan, 1995. However, the floral composition of BNP is still remain unrevealed. As an area of moderate species diversity, extensive floristic study of this area demands considerable importance. Hence, an attempt has been made to prepare a checklist of vascular plants of the area to explore, identify, find out the use, collect samples and preserve the voucher specimens for further references. This floristic study will generate baseline information for any conservation and management activity of the area.

Materials and Methods

Floristic surveys were conducted in different seasons in the year of 2018 to 2020 to collect plant samples in flowering and/or fruiting condition by following walkover method (Lawrence 1951). Surveys were done almost every part of the park *i.e*. plantation areas, cultivated land, roadside and homestead areas. Almost all available plant species were collected with relevant information (*viz*. habit, habitat, local name/s, use/s etc.). Plant specimens have been collected in flowering stage and photographs were taken in both flowering and non-flowering stage from the study area. Identification was confirmed by comparing with herbarium specimens deposited at Bangladesh National Herbarium (DACB), consulting different Floras (S.N. Uddin and M.A. Hassan, 2018; Z.U. Ahmed *et al*., 2008a, 2008b, 2009a, 2009b, 2009c, 2009d, K.U. Siddiqui *et al*., 2007) and clear type images available on the websites of different international herbaria (*i.e*. Kew, Edinburgh). Threatened categories of plants were confirmed with the help of M.S. Khan *et al*. (2001) and H. Ara *et al*. (2013).



The current nomenclatural information was incorporated as per ICBN by consulting with *Index Kewensis*, Updated plant names are collected from The Plant List (2013), nomenclatural databases of IPNI (2008) and TROPICOS (2010). Local name/s, use/s of the plant species have been collected from local people during field surveys. All the collected specimens have been preserved at the Bangladesh National Herbarium (DACB). The species have been arranged alphabetically and furnished with scientific name, local name, family, habit, habitat, use/s and exsiccatae.

Results and Discussion

The results of this research show that the park comprises 222 species under 176 genera and 69 families of vascular plants. The number of species of Dicotyledons (Magnoliopsida) and Monocotyledons (Liliopsida) are182 and 36 respectively, whereas, Pteridophytes represented by only 4 species. Among those 69 families, 26 families represented by only single species, *viz.* Apiaceae, Aristolochiaceae, Asclepiadaceae, Bixaceae, Brassicaceae, Costaceae, Cuscutaceae, Dilleniaceae, Dipterocarpaceae, Flacourtiaceae, Gentianaceae, Liliaceae, Loranthaceae, Magnoliaceae, Meliaceae, Menispermaceae, Musaceae, Myrtaceae, Orchidaceae, Oxalidaceae, Passifloraceae, Plumbaginaceae, Pteridaceae, Sapindaceae, Ulmaceae and Vitaceae. *Solanum* and *Albizia* with four species recorded as the largest genus, followed by *Senna, Cassia, Terminalia, Cyperus, Desmodium, Ficus* and *Ocimum*. Whereas, Euphorbiaceae, Asteraceae, Fabaceae appear as the largest family with 13 species each, followed by Poaceae with 9 species, Acanthaceae with 08 species and Caesalpiniaceae with 08 species. The study also revealed that out of 222 plant species, the highest percentage of species fall under herbaceous group (45.0%), followed by trees (32.0%), shrubs (17.6%) and climbers (5.4%). Checklist of plants found in the BNP are presented in Table 1.

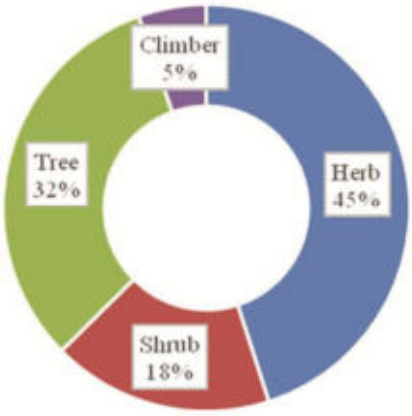


Fig. 2. Pie chart showing percent distribution of the plant habits.

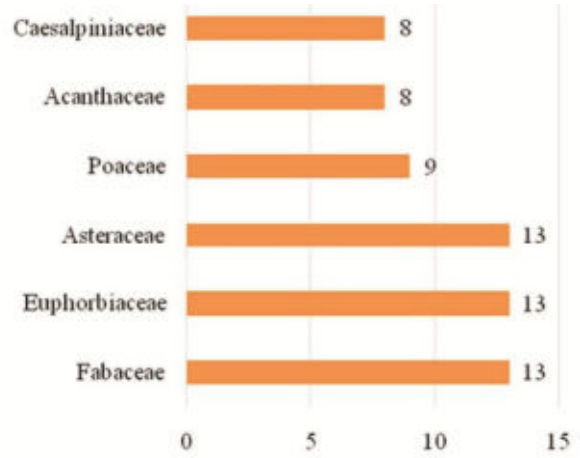


Fig. 3. Bar diagram showing the highest number of species under the families.

Table 1. Checklist of plants found in the Birgonj National Park.

Scientific Name	Local Name	Family	Habit	Habitat	Use	Exsiccatae
Abroma augusta (L.) L.f.	Ulatkambol	Sterculiaceae	Tree	Forest margins	Medicinal	NR1451
Abutilon indicum (L.) Sweet	Jhumka	Malvaceae	Shrub	Open areas	Medicinal	NR1440
Acacia catechu (L.f.) Willd.	Khoyer	Fabaceae	Tree	High areas	Medicinal	NR 1401
Acalypha indica L.	Muktajhuri	Euphorbiaceae	Herb	shade of thickets	Medicinal	NR1307
Achyranthes aspera L.	Apang	Amaranthaceae	Herb	Open dry places	Medicinal	NR1365
Acmella calva (DC.) R.K.Jansen	Nagful	Asteraceae	Herb	Waste lands	Medicinal	KKI 4065
Acmella paniculata (Wall. *ex* DC.) R.K.Jansen	Not Known	Asteraceae	Herb	Terrestrial	Medicinal	NR1438
Adenosma indianum (Lour.) Merr.	Barakesuti	Scrophulariaceae	Herb	Wet lowlands	Not known	NR 1239
Aegle marmelos (L.) Corrêa	Bel	Rutaceae	Tree	Open places	Fruit	NR1327
Ageratum conyzoides L.	Fulkuri	Asteraceae	Herb	Marshlands	Medicine	DMS *et al.* 3451
Albizia chinensis (Osbeck) Merr.	Tarul	Mimosaceae	Tree	Forests and open fields	Fire wood	KKI 4022
Albizia lebbeck (L.) Benth.	Sirish	Mimosaceae	Tree	Roadsides	Timber	KKI 4073
Albizia procera (Roxb.) Benth.	Koroi	Mimosaceae	Tree	Roadsides and dry areas	Firewood	NR1424
Albizia richardiana (Voigt) King & Prain	Rajkoroi	Mimosaceae	Tree	Dry to moist soils.	Timber	KKI 4043
Alpinia galanga (L.) Willd.	Botchsugondha	Zingiberaceae	Herb	Terrestrial	Spices	NR1398
Alpinia nigra (Gaertn.) Burtt	Jongli ada	Zingiberaceae	Herb	Wet lowlands	Medicinal	KKI 4088
Alstonia scholaris (L.) R. Br.	Chatim	Apocynaceae	Tree	Open reed areas	Medicinal	NR1340
Alternanthera sessilis (L.) R. Br. *ex* DC.	Sachi shak	Amaranthaceae	Herb	Wastelands	Vegetables	NR 1271
Alysicarpus vaginalis (L.) DC.	Pan-nata	Fabaceae	Herb	Grassland	Not known	NR1318
Amaranthus spinosus L.	Kata shak	Amaranthaceae	Herb	Waste places	Vegetables	NR 1266
Amaranthus viridis L.	Notey shak	Amaranthaceae	Shrub	Terrestrial	Medicinal	NR1439
Amischophacelus axillaris (L.) Rolla Rao & Kamm.	Grass	Commelinaceae	Herb	Shady places	Not known	NR 1291
Anisomeles indica (L.) Kuntze	Gobura	Lamiaceae	Herb	Sunny places	Medicinal	KKI 3975
Annona reticulata L.	Ata	Annonaceae	Tree	Forest margins	Fruit Edible	KKI 4039
Ardisia solanacea (Poir.) Roxb.	Banjam	Myrsinaceae	Tree	Moist mixed forest	Medicinal	KKI 3994

Table 1 Contd.

Scientific Name	Local Name	Family	Habit	Habitat	Use	Exsiccatae
Ardisia thomsonii Mez	Sayajoni	Myrsinaceae	Shrub	Dry to moist places	Ornamental	NR1349
Aristolochia indica L.	Ishwarmul	Aristolochiaceae	Climber	Moist places	Medicinal	DMS2677
Artocarpus heterophyllus Lam.	Kathal	Moraceae	Tree	Highlands	Fruit, timber	NR1315
Averrhoa carambola L.	Kamranga	Oxalidaceae	Tree	Forest margins	Fruit	NR1312
Axonopus compressus (Sw.) P.Beauv.	Carpet durba	Poaceae	Herb	Terrestrial	Fodder	NR1322
Azadirachta indica A.Juss.	Nim	Meliaceae	Tree	Lowland forests	Medicinal	KKI 4074
Baliospermum solanifolium (Burm.) Suresh	Danti	Euphorbiaceae	Herb	Terrestrial	Medicinal	NR1360
Bambusa balcooa Roxb.	Boira bans	Poaceae	Herb	Open places	Basket	KKI 3967
Bambusa tulda Roxb.	Tollabash	Poaceae	Tree	Mixed deciduous forest	Timber	NR1377
Barringtonia acutangula (L.) Gaertn.	Hijol	Lecythidaceae	Tree	Aquatic	Firewood	NR1403
Bauhinia malabarica Roxb.	Kanchan	Caesalpiniaceae	Tree	Open areas, forest edges	Ornamental	KKI 4000
Bauhinia purpurea L.	Debkanchan	Fabaceae	Tree	On hill slopes	Ornamental	NR1344
Bidens pilosa L.	Bidenlosa	Asteraceae	Herb	Terrestrial	Not known	NR1414
Bixa orellana L.	Bixa	Bixaceae	Shrub	Inland thickets	Ornamental	NR1412
Blumea lacera (Burm.f.) DC.	Kukurshinga	Asteraceae	Herb	Waste land	Unknown	NR 1483
Borassus flabellifer L.	Tal	Arecaceae	Tree	Forest and open places	Fruit	KKI 3971
Butea monosperma (Lam.) Taub.	Polash	Fabaceae	Tree	Grasslands and wastelands	Ornamental	KKI 4014
Caesalpinia pulcherrima (L.) Sw.	Radhachura	Caesalpiniaceae	Small tree	Terrestrial	Ornamental	NR1321
Cajanus cajan (L.) Millsp.	Arhar	Fabaceae	Herb	Terrestrial	Medicinal	NR1404
Calamus tenuis Roxb.	Bandibet	Arecaceae	Shrub	Aquatic	Fencing	NR1356
Calotropis gigantea (L.) Dryand.	Baro Akand	Asclepiadaceae	Shrub	Roadsides	Medicinal	NR1385
Canscora diffusa (Vahl) R.Br. *ex* Roem. & Schult.	Bhui neem	Gentianaceae	Herb	Grasslands	Medicinal	NR1324
Capparis zeylanica L.	Azarilata	Cappariaceae	Shrub	Forest borders	Fruit	KKI 4080
Cascabela thevetia (L.) Lippold	Kolkiful	Apocynaceae	Tree	Lowland or riparian forests	Ornamental, medicinal	KKI 4090

Table 1 Contd.

Scientific Name	Local Name	Family	Habit	Habitat	Use	Exsiccatae
Cassia roxburghii DC.	Lal-golapi Sonalu	Caesalpiniaceae	Tree	Open areas	Ornamental	NR1397
Cassia fistula L.	Bandarlathi	Caesalpiniaceae	Tree	Terrestrial	Medicinal	NR1402
Cassia javanica L.	Golapi sonalu	Caesalpiniaceae	Tree	Open sites in the forest	Ornamental	KKI 4068
Centella asiatica (L.) Urb.	Thankuni	Apiaceae	Herb	Wet places	Medicinal	KKI 4070
Cheilocostus speciosus (J.Koenig) C.D.Specht	Keumul	Costaceae	Shrub	Terrestrial	Ornamental	NR1453
Chromolaena odorata (L.) R.M.King & H.Rob.	Assamgach	Asteraceae	Shrub	Terrestrial	Medicinal	NR1429
Cissus verticillata (L.) Nicol. & C.E. Jarvis	Anguri	Vitaceae	Climber	Dry to wet thickets	Medicinal	NR1332
Citrus limon (L.) Osbeck	Lebu	Rutaceae	Shrub	Cultivated	Juice	KKI 3966
Cleome rutidosperma DC.	Not known	Capparaceae	Herb	Waste places	Not known	NR 1264
Cleome viscosa L.	Hurhuri	Capparaceae	Herb	Terrestrial	Medicinal	NR1413
Clerodendrum infortunatum L.	Vat	Verbenaceae	Shrub	Waste lands	Not known	NR 1287
Coccinia grandis (L.) Voigt	Telakucha	Cucurbitaceae	Vine	Shady waste places	Medicinal	NR1436
Cocos nucifera L.	Narical	Arecaceae	Tree	Cultivated	Fruit	KKI 3964
Codiaeum variegatum (L.) Rumph. *ex* A.Juss.	Patabahar	Euphorbiaceae	Tree	Roadsides	Ornamental	Not collected
Colocasia esculenta (L.) Schott	Kochu	Araceae	Herb	Moist places	Vegetables	NR 1257
Commelina benghalensis L.	Grass	Commelinaceae	Herb	Shady moist places	Not known	NR 1268
Corchorus capsularis L.	Bogipat	Tiliaceae	Shrub	Aquatic	Fiber	NR1446
Corchorus olitorius L.	Toshapat	Tiliaceae	Shrub	Aquatic	Fiber	NR1391
Cordia dichotoma G.Forst.	Bohul	Boraginaceae	Tree	Terrestrial	Medicinal	NR1380
Couroupita guianensis Aubl.	Naglingom	Lecythidaceae	Tree	Roadsides	Not known	Not Collected
Croton bonplandianus Baill.	Bon tulsi	Euphorbiaceae	Herb	Dry places	Firewood	NR 1246
Croton persimilis Müll.Arg.	Baragach	Euphorbiaceae	Shrub	Mixed and dry forests	Medicinal	KKI 3983
Cucumis ritchiei (C.B.Clarke) Ghebret. & Thulin	Gogra	Cucurbitaceae	Herb	Climbing	Edible fruit	NR1406

Table 1 Contd.

Scientific Name	Local Name	Family	Habit	Habitat	Use	Exsiccatae
Curculigo orchioides Gaertn.	Talamuli	Liliaceae	Herb	Scrub forests	Medicinal	KKI 4018
Cuscuta reflexa Roxb.	Swarnolota	Cuscutaceae	Climber	Parasitic	Not known	NR 1288
Cyanthillium cinereum (L.) H.Rob.	Shila murta	Asteraceae	Herb	Waste places	Ornamental	NR1362
Cynodon dactylon (L.) Pers.	Durbagachh	Poaceae	Herb	Loamy soil	Medicinal	KKI 4044
Cyperus cuspidatus Kunth	Grass	Cyperaceae	Herb	Sandy soil	Fodder	NR 1250
Cyperus difformis L.	Grass	Cyperaceae	Herb	Sandy soil	Fodder	NR 1269
Cyperus rotundus L.	Mutha	Cyperaceae	Herb	Terrestrial	Medicinal	NR1392
Dalbergia sissoo DC.	Shishoo	Fabaceae	Tree	Deciduous	Timber	NR1417
Datura stramonium L.	Dhutura	Solanaceae	Herb	Waste land	Medicinal	NR1425
Deeringia amaranthoides (Lam.) Merr.	Golamohini	Amaranthaceae	Shrub	Waste land	Medicinal	NR1387
Dendrophthoe falcata (L.f.) Ettingsh.	Bandha	Loranthaceae	Shrub	Parasitic	Medicinal	NR1410
Desmodium heterophyllum (Willd.) DC.	Not known	Fabaceae	Herb	Waste places	Not known	NR 1270
Desmodium gangeticum (L.) DC.	Salpani	Fabaceae	Shrub	Forest paths	Soil binder	DMS 2683
Desmodium incanum DC.	Modi	Fabaceae	Herb	Shady waste places	Medicinal	NR1359
Dicliptera paniculata (Forssk.) I.Darbysh.	Panitera	Acanthaceae	Herb	Weedy areas, roadsides	Medicinal	KKI 4019
Dillenia indica L.	Chalta	Dilleniaceae	Tree	Cultivated	Fruit	Not collected
Dioscorea bulbifera L.	Ban alu	Dioscoreaceae	Herb	Secondary forests	Medicinal	NR1369
Dioscorea oppositifolia L.	China maittya alu	Dioscoreaceae	Herb	Secondary forests	Medicinal	NR1350
Dipteracanthus prostratus (Poir.) Nees	Booti	Acanthaceae	Herb	Terrestrial	Medicinal	NR1447
Drynaria quercifolia (L.) J. Sm.	Pankhiraj	Polypodiaceae	Fern	Epiphytic	Medicinal	KKI 4077
Eclipta alba (L.) Hassk.	Kalokeshi	Asteraceae	Herb	Damp waste lands	Medicinal	NR 1273
Elephantopus scaber L.	Geijashak	Asteraceae	Herb	Terrestrial	Medicinal	NR1361
Eragrostis ciliianensis (All.) Janch.	Dudh nol	Poaceae	Herb	Terrestrial	Fodder	NR1353
Eragrostis unioloides (Retz.) Nees ex Steud.	Chira ghas	Poaceae	Herb	Dry to moist habitats	Firewood	KKI 3990
Erythrina variegata L.	Mandar	Fabaceae	Tree	Sandy loam areas	Ornamental	NR1329

Table 1 Contd.

Scientific Name	Local Name	Family	Habit	Habitat	Use	Exsiccatae
Euphorbia hirta L.	Dudhiya lota	Euphorbiaceae	Herb	Terrestrial	Medicinal	NR1372
Euphorbia pulcherrima Willd. *ex* Klotzsch	Lalpatahori	Euphorbiaceae	Shrub	Lowlands	Ornamental	NR1386
Evolvulus nummularius (L.) L.	Bhui okra	Convolvolaceae	Herb	Wet places	Medicinal	KKI 4077
Ficus hispida L.	Dumur	Moraceae	Tree	Secondary Forest	Fruit	NR 1267
Ficus benghalensis L.	Bot	Moraceae	Tree	Terrestrial	Firewood	NR1448
Ficus rumphii Blume	Jhula Bot	Moraceae	Tree	Along trails	Timber	NR1319
Flacourtia indica (Burm.f.) Merr.	Baicha	Flacortiaceae	Tree	Dry deciduous forests	Ornamental	NR1357, KKI 3986
Glycosmis pentaphylla (Retz.) DC.	Motkila	Rutaceae	Shrub	Roadsides	Ornamental	NR1370
Gmelina arborea Roxb.	Gamari	Verbenaceae	Tree	very dry to wet areas	Timber	NR1423
Gomphostemma strobilinum Wall. *ex* Benth.	Bilaimala	Lamiaceae	Herb	Evergreen forests	Medicinal	NR1371
Haldina cordifolia (Roxb.) Ridsdale	Haldu	Rubiaceae	Tree	Swampy wetlands	Timber	NR1308
Heliotropium indicum L.	Hatishur	Boraginaceae	Herb	Sunny areas, on waste land	Medicinal	NR1444
Hibiscus rosa-sinensis L.	Joba	Malvaceae	Shrub	Cultivated	Ornamental	NR1452
Holarrhena pubescens Wall. *ex* G.Don	Lom Kurchi	Apocynaceae	Tree	Humid areas	Firewood	NR1378
Hygrophila schulli M.R. Almeida & S.M.Almeida	Kanta kalika	Acanthaceae	Herb	Marshy lands	Medicinal	NR1379
Ichnocarpus frutescens (L.) W.T. Aiton	Shamalata	Apocynaceae	Herb	Terrestrial	Medicinal	NR1346
Ipomoea aquatica Forssk.	Kolmi	Convolvulaceae	Herb	Aquatic	Vegetables	NR 1275
Ipomoea sagittata Poir.	Solu kalmi	Convolvulaceae	Vine	Marshy places	Medicinal	NR1326
Jasminum multiflorum (Burm.f.) Andrews	Chameli	Oleaceae	Shrub	Sunny places	Medicinal	KKI 4019a
Laphangium luteoalbum (L.) Tzvelev	Bara kamra	Asteraceae	Herb	Open field	Not known	NR 1353
Lepidagathis incurve Buch.-Ham. *ex* D. Don	Karoggathis	Acanthaceae	Herb	Terrestrial	Not known	NR1336
Leucas zeylanica (L.) W.T.Aiton	Shetodrone	Lamiaceae	Herb	Terrestrial	Medicinal	NR1341

Table 1 Contd.

Scientific Name	Local Name	Family	Habit	Habitat	Use	Exsiccatae
Limonia acidissima Groff	Kodbel	Rutaceae	Tree	Dry plain places	Fruit	KKI 3993
Lindenbergia indica Vatke	Basonti	Scrophulariaceae	Herb	Aquatic	Medicinal	NR1407
Lindernia crustacea (L.) F.Muell.	Not known	Scrophulariaceae	Herb	Moist places	Not known	NR 1237
Lindernia micrantha D. Don	Not known	Scrophulariaceae	Herb	Moist places	Not known	NR 1238
Litsea glutinosa (Lour.) C.B.Rob.	Kharajura	Lauraceae	Tree	Forest margins	Medicinal	KKI 4061
Litsea monopetala (Roxb.) Pers.	Huroira	Lauraceae	Tree	Thickets or sparse forests	Beauty products	KKI 4002
Ludwigia hyssopifolia (G. Don) Exell	Not known	Onagraceae	Herb	Waste places	Not known	NR 1280
Ludwigia prostrata Roxb.	Shayankura	Onagraceae	Herb	Wet swampy areas		KKI 3991
Lygodium flexuosum (L.) Sw.	Vootraaj	Lygodiaceae	Fern	Moist, open places	Medicinal	NR1314
Lygodium giganteum Tagawa & K.Iwats.	Angul lata	Lygodiaceae	Climber	Waste places	Not known	KKI 4029
Madhuca indica J.F.Gmel.	Mohua	Sapindaceae	Tree	Forest margins	Medicinal	NR1309
Magnolia champaca (L.) Baill. *ex* Pierre	Champa	Magnoliaceae	Tree	Lowlands	Ornamental	KKI 3973
Mallotus philippensis (Lam.) Müll.Arg.	Rohini	Euphorbiaceae	Shrub	Scrubby vegetation	Medicinal	NR1355
Mallotus repandus (Willd.) Müll.Arg.	Gunti	Euphorbiaceae	Shrub	Forest edges	Medicinal	KKI 4074
Malvaviscus glabrescens Planch. var. *penduliflorus*	Not known	Malvaceae	Shrub	Forest thickets	Medicinal	KKI 4098
Mangifera indica L.	Amm	Anacardiaceae	Tree	Humid tropical forests	Fruit	KKI 4046
Manilkara zapota (L.) P.Royen	Sofeda	Sapotaceae	Tree	Forest floor	Fruit	NR 1265
Merremia hederacea (Burm. f.) Hallier f.	Kaladana	Convolvulaceae	Herb	Grassland	Medicinal	NR1408
Mikania scandens (L.) Willd.	Assamlota	Asteraceae	Vine	Damp soil	Poisonous	NR1421
Millettia pinnata (L.) Panigrahi	Pina milati	Fabaceae	Tree	Shady soil	Medicinal	NR1399
Mimosa pudica L.	Sarminda	Mimosaceae	Herb	Weedy	Medicinal	NR1348
Mimusops elengi L.	Bokul	Sapotaceae	Tree	Humid lowland	Medicinal	NR1395
Morinda citrifolia L.	Ach	Rubiaceae	Tree	Plain lands	Medicinal	NR 1241
Morus alba L.	Tut	Moraceae	Tree	Well-drained loamy soil	Silviculture	KKI 4038
Mukia maderaspatana (L.) M.Roem.	Bilari	Cucurbitaceae	Climber	Open places	Medicinal	KKI 3977
Murdannia nudiflora (L.) Brenan	Kanduli	Commelinaceae	Herb	Wet places	Medicinal	KKI 3969

Table 1 Contd.

Scientific Name	Local Name	Family	Habit	Habitat	Use	Exsiccatae
Musa paradisiaca L.	Kola	Mosaceae	Herb	Humid jungles	Fruit edible	KKI 3996
Nelsonia canescens (Lam.) Spreng.	Paramul	Acanthaceae	Herb	Grassy places	Medicinal	KKI 3989
Neolamarckia cadamba (Roxb.) Bosser	Bul kadam	Rubiaceae	Tree	Secondary forest	Timber	NR1384
Nerium oleander L.	Karabi	Apocynaceae	Shrub	Temperate	Ornamental	NR1396
Nyctanthes arbor-tristis L.	Shefali	Oleaceae	Tree	Terrestrial	Medicinal	NR1401
Ocimum americanum L.	Bon tulshi	Lamiaceae	Herb	Moist soil	Medicinal	NR1388
Ocimum gratissimum L.	Ramtulsi	Lamiaceae	Herb	Roadsides	Medicinal	KKI 4097
Ocimum tenuiflorum L.	Kalo tulshi	Lamiaceae	Herb	Moist soil	Medicinal	NR1373
Oldenlandia corymbosa L.	Khet papra	Rubiaceae	Herb	Waste lands	Medicinal	NR 1254
Oldenlandia diffusa (Willd.) Roxb.	Not known	Rubiaceae	Herb	Moist places	Not known	NR 1253
Oplismenus compositus (L.) P.Beauv.	Gohur-durba	Poaceae	Herb	Shady place	Not known	NR1366
Oroxylum indicum (L.) Kurz	Sonapata	Bignoniaceae	Tree	Lowland	Firewood	NR1335
Passiflora foetida L.	Jhumka	Passifloraceae	Climber	Parasitic	Ornamental	NR 1289
Pennisetum glaucum (L.) R.Br.	Eksila ghash	Poaceae	Shrub	Sandy place	Fodder	NR1431
Pennisetum purpureum Schumach.	Nepi ghas	Poaceae	Herb	Damp grassland	Fiber	KKI 4069
Peperomia pellucida (L.) Kunth	Luchi pata	Piperaceae	Herb	Shady damp places	Not known	NR 1258
Persicaria hydropiper (L.) Delarbre	Bishkatali	Polygonaceae	Herb	Aquatic	Medicinal	NR1376
Phaulopsis imbricata (Forssk.) Sweet	Kantasi	Acanthaceae	Herb	Wet places	Medicinal	KKI 4008
Phyllanthus emblica L.	Amloki	Euphorbiaceae	Tree	Low lands	Fruit	NR1331
Phyllanthus reticulatus Poir.	Chitki	Euphorbiaceae	Shrub	Waste places	Firewood	NR 1263
Physalis minima L.	Futki	Solanaceae	Herb	Shady places	Not known	NR 1249
Piper longum L.	Pipul	Piperaceae	Herb	Shady places	Medicinal	NR 1256
Pistia stratiotes L.	Topapana	Araceae	Herb	Aquatic	Fodder	NR 1242
Plumbago zeylanica L.	Chitra	Plumbaginaceae	Shrub	Fallow fields	Medicinal	NR1435
Polyalthia longifolia (Sonn.) Thwaites	Debdaru	Annonaceae	Tree	Dry places	Ornamental	NR1400
Pothos scandens L.	Bati lata	Araceae	Herb	Waste places	Medicinal	NR1454
Pteris vittata L.	Dhekia	Pteridaceae	Fern	Limestone	Ornamental	NR1347
Pyrrosia lanceolata (L.) Farw.	Not known	Polypodiaceae	Herb	On trees	Medicinal	KKI 3962

Table 1 Contd.

Scientific Name	Local Name	Family	Habit	Habitat	Use	Exsiccatae
Rauvolfia serpentina (L.) Benth. *ex* Kurz	Sorpogondha	Apocynaceae	Shrub	Shady place	Medicinal	NR1334
Rhynchostylis retusa (L.) Blume	Shial leza	Orchidaceae	Climber	On trees	Ornamental	NR1383
Ricinus communis L.	Verenda	Euphorbiaceae	Shrub	Sandy loam	Medicinal	NR1443
Rorippa palustris (L.) Besser	Panisarisa	Brassicaceae	Herb	Dry lands	Not known	NR 1251
Ruellia tuberosa L.	Not known	Acanthaceae	Herb	Fallow lands	Not known	NR 1272
Rungia pectinata (L.) Nees	Pindi	Acanthaceae	Herb	Rocky surface	Medicinal	DMS 2669
Scindapsus officinalis (Roxb.) Schott	Goj pipul	Araceae	Climber	Lowland to hill forest	Medicinal	KKI 3961
Scoparia dulcis L.	Bon dhonia	Scrophulariaceae	Herb	Waste place	Medicinal	NR1333
Senna occidentalis (L.) Link	Chalkeshunda	Caesalpiniaceae	Shrub	Waste place	Medicinal	NR1433
Senna siamea (Lam.) H.S.Irwin & Barneby	Minjiri	Caesalpiniaceae	Tree	Low lands	Ornamental	NR1411
Senna tora (L.) Roxb.	Teraj	Caesalpiniaceae	Herb	Wasteland	Medicinal	NR1418
Sesbania grandiflora (L.) Poir.	Bokful	Fabaceae	Tree	Cultivated	Firewood	NR 1285
Shorea robusta Gaertn.	Shaal	Dipterocarpaceae	Tree	Cultivated	Timber	NR1342, DMS *et al.* 3456
Sida acuta Burm.f.	Kureta	Malvaceae	Shrub	Fallow land	Medicinal	NR1437
Sida rhombifolia L.	Lalberela	Malvaceae	Shrub	Fallow land	Medicinal	NR1325
Smilax ovalifolia Roxb. *ex* D.Don	Kumri lata	Smilacaceae	Climber	Waste places	Medicinal	KKI 3998
Smilax zeylanica L.	Lonica lota	Smilacaceae	Shrub	Hilly areas	Medicinal	NR1345
Solanum sisymbriifolium Lam.	Kanta begun	Solanaceae	Herb	Waste land	Trap crop	NR1430
Solanum *americanum* Mill.	Tit begun	Solanaceae	Herb	Waste places	Not known	NR 1260
Solanum torvum Sw.	Goth begun	Solanaceae	Shrub	Waste land	Vegetables	NR1442
Solanum violaceum Ortega	Tit begun	Solanaceae	Shrub	Wastelands	Medicinal	KKI 4062
Spermacoce alata Aubl.	Ghujhil	Rubiaceae	Herb	Sandy soil	Medicinal	NR1374
Spermacoce ocymoides Burm.f.	Tharakeera	Rubiaceae	Herb	Waste places	Medicinal	KKI 4050
Sphagneticola trilobata (L.) Pruski	Latadeji	Asteraceae	Herb	Damp or wet soil	Medicinal	KKI 4051
Spondias mombin L.	Bon amra	Anacardiaceae	Tree	Humid places	Fruits	NR1381
Spondias pinnata (L. f.) Kurz	Bon amra	Anacardiaceae	Tree	Primary and mixed forests	Fruits	KKI 3964

Table 1 Contd.

Scientific Name	Local Name	Family	Habit	Habitat	Use	Exsiccatae
Stephania japonica (Thunb.) Miers	Akanadi	Menispermaceae	Climber	Scrub jungles	Ornamental	NR 1244
Sterculia foetida L.	Jongi badam	Sterculiaceae	Tree	River banks and sandstone rocks	Medicinal	NR1405
Streblus asper Lour.	Shewra	Moraceae	Tree	Low lands	Firewood	NR1310
Suregada multiflora (A.Juss.) Baill.	Ban-naringa	Euphorbiaceae	Tree	Low lands	Medicinal	KKI 4036
Synedrella nodiflora (L.) Gaertn.	Relanodi	Asteraceae	Herb	Moist places	Fodder	KKI 4045
Syngonium podophyllum Schott	Podolatakachu	Araceae	Climber	Dense primary forest	Medicinal	KKI 4023
Syzygium cumini (L.) Skeels	Jam	Myrtaceae	Tree	Wet to fairly dry areas	Fruit	KKI 3984
Tabernaemontana divaricata (L.) R.Br. *ex* Roem. & Schult.	Tagor	Apocynaceae	Shrub	Fallow land	Ornamental	NR1330, DMS *et al.* 3467
Tecoma stans (L.) Juss. *ex* Kunth	Sonapatti	Bignoniaceae	Shrub	Dry and disturbed areas	Medicinal	NR1358
Tectona grandis L.f.	Segun	Verbenaceae	Tree	Deciduous forests	Timber	KKI 4093
Terminalia arjuna (Roxb. *ex* DC.) Wight & Arn.	Arjun	Combretaceae	Tree	Wet, marshy areas	Medicinal	NR1394
Terminalia bellirica (Gaertn.) Roxb.	Bohera	Combretaceae	Tree	Scattered forests	Medicinal	KKI 3992
Terminalia chebula Retz.	Horitoki	Combretaceae	Tree	Mixed deciduous forest	Medicinal	NR1434
Trema orientalis (L.) Blume	Chikon	Ulmaceae	Tree	Moist forests	Medicinal	NR1409
Trichosanthes tricuspidata Lour.	Makal	Cucurbitaceae	Climber	Open places, moist areas	Wild life supportive	NR1367
Triumfetta rhomboidea Jacq.	Bon Okra	Malvaceae	Herb	Along roads and trails	Rope	NR1422
Typhonium trilobatum (L.) Schott	Ghechu	Araceae	Herb	Secondary forests, thickets	Vegetable, Medicinal	KKI 4040
Urena lobata L.	Bon okra	Malvaceae	Shrub	Waste places	Not known	NR 1290
Xylia xylocarpa (Roxb.) Taub.	Lohakath	Fabaceae	Tree	Dry evergreen forests	Vegetable	KKI 4030
Zanthoxylum rhesta (Roxb.) DC.	Bajna	Rutaceae	Tree	Cultivated	Medicinal	Not Collected
Zingiber montanum (J.Koenig) Link *ex* A.Dietr.	Bon ada	Zingiberaceae	Herb	Moist places	Spice	KKI 4022
Ziziphus jujuba Mill.	Boroi, Kul	Rhamnaceae	Tree	Sunny dry slopes	Fruit	KKI 4061
Ziziphus xylopyrus (Retz.) Willd.	Anigota	Rhamnaceae	Climber	Deciduous forests	Fruit	KKI 4032

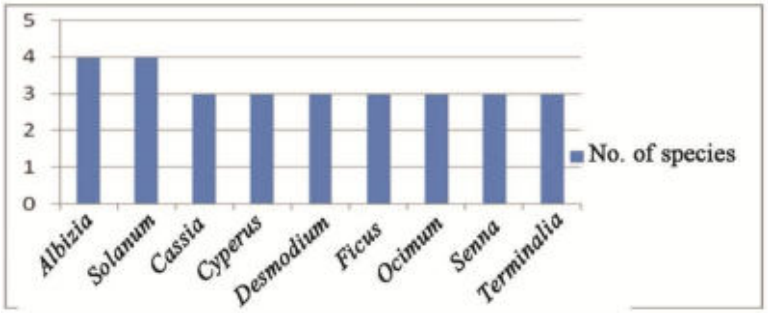


Fig. 4. Bar diagram showing the highest number of genus with species.

The present study identifies over 102 medicinal plants used by the local people of the study area for their primary health care. Some of the important medicinal plants used by the local people are *Acalypha indica* L., *Alstonia scholaris* (L.) R. Br., *Azadirachta indica* A. Juss., *Centella asiatica* (L.) Urban, *Coccinia grandis* (L.) Voigt., *Terminalia arjuna* (Roxb. *ex* DC.) Wight & Arn., *Terminalia bellirica* (Gaertn.) Roxb., *Terminalia chebula* Retz., *Litsea glutinosa* (Lour.) C.B.Rob., *Euphorbia hirta* L. and *Abroma augusta* (L.) L.f. Apart from medicinal uses 11 species having fire wood value, 05 species having fiber yielding value, 26 species having ornamental value, 21 species having fruit value, 7 species having vegetable value, 7 species having fodder value and 2 species having soil binding importance. On the other hand, 2 species have poisonous properties also. *Rouvolfia serpentina* Benth. *ex* Kurz is the only red listed species found in the survey (M.S. Khan *et al*., 2001).

Observations during field works resulted in identifying some major threats for the flora of the area, which include over exploitation, illegal cutting, expanding agriculture, lack of awareness, plantation of exotic trees, destruction and degradation of habitats, habitat fragmentation, population pressures, ground fire and climate change. Therefore, efforts should be undertaken to minimize these threats for safeguard the plants.

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References

Ahmed, Z.U., M.A. Hassan, Z.N.T. Begum, M. Khondker, S.M.H. Kabir, M. Ahmad, A.T.A. Ahmed, A.K.A. Rahman and E.U. Haque (eds.). 2008b. *Encyclopedia of Flora and Fauna of Bangladesh,* Vol. 12. Angiosperms: Monocotyledons (Orchidaceae-Zingiberaceae). Asiatic Society of Bangladesh, Dhaka, pp. 1-552.

Ahmed, Z.U., M.A. Hassan, Z.N.T. Begum, M. Khondker, S.M.H. Kabir, M. Ahmad, A.T.A. Ahmed, A.K.A. Rahman and E.U. Haque (eds.). 2009a. *Encyclopedia of Flora and Fauna of Bangladesh*, Vol. **7.** Angiosperms: Dicotyledons (Balsaminaceae-Euphorbiaceae). Asiatic Society of Bangladesh, Dhaka, pp. 1-546.

Ahmed, Z.U., M.A. Hassan, Z.N.T. Begum, M. Khondker, S.M.H. Kabir, M. Ahmad, A.T.A. Ahmed, A.K.A. Rahman and E.U. Haque (eds.). 2009b. *Encyclopedia of Flora and Fauna of Bangladesh*, Vol. 8. Angiosperms: Dicotyledons (Fabaceae-Lythraceae). Asiatic Society of Bangladesh, Dhaka, pp. 1-478.

Ahmed, Z.U., M.A. Hassan, Z.N.T. Begum, M. Khondker, S.M.H. Kabir, M. Ahmad, A.T.A. Ahmed, A.K.A. Rahman and E.U. Haque (eds.). 2009c. *Encyclopedia of Flora and Fauna of Bangladesh*, Vol. 9. Angiosperms: Dicotyledons (Magnoliaceae-Punicaceae). Asiatic Society of Bangladesh, Dhaka, pp. 1-488.

Ahmed, Z.U., M.A. Hassan, Z.N.T. Begum, M. Khondker, S.M.H. Kabir, M. Ahmad, A.T.A. Ahmed, A.K.A. Rahman and E.U. Haque (eds.). 2009d. *Encyclopedia of Flora and Fauna of Bangladesh,* Vol. 10. Angiosperms: Dicotyledons (Ranunculaceae-Zygophyllaceae). Asiatic Society of Bangladesh, Dhaka, pp. 1-580.

Ahmed, Z.U., Z.N.T. Begum, M. A. Hassan, M. Khondker, S. M.H. Kabir, M. Ahmad, A.T.A. Ahmed, A.K.A. Rahman and E.U. Haque (eds.). 2008a. *Encyclopedia of Flora and Fauna of Bangladesh,* Vol. 6. Angiosperms: Dicotyledons (Acanthaceae-Asteraceae). Asiatic Society of Bangladesh, Dhaka, pp. 1-408.

Ara, H., B. Khan and S.N. Uddin (eds.). 2013. Red Data Book of Vascular Plants of Bangladesh, Vol. 2. Bangladesh National Herbarium, Dhaka, Bangladesh.

Arefin, M.K., Rahman, M.M., Uddin, M.Z. and Hassan, M.A. 2011. Angiospermic Flora of Satchari National Park, Habiganj, *Bangladesh. Bangladesh J. Plant Taxon*. 18(2): 117–140.

BBS (Bangladesh Bureau of Statistics). 2013. District Statistics. Bangladesh Bureau of Statistics. Government of the People's Republic of Bangladesh. pp. 25-33.

Khan, M.S., M.M. Rahman and M.M. Ali (eds.). 2001. Red Data Book of Vascular Plants of Bangladesh. Vol. 1. Bangladesh National Herbarium. pp. 22.

Lawrence, G.H.M. 1951 (Indian Repr. 1978). *Taxonomy of Vascular Plants*. Mohon Primlani, Oxford & IBH Publishing Co., 66 Janapath, New Delhi 110001. pp. 1-823.

Rahaman, M.A., Rahman, M.A. and Uddin, M.Z. 2017. Diversity of Angiosperm Flora of Kuakata National Park, Patuakhali District, Bangladesh. *Journal of the Asiatic Society Bangladesh Science*. **43**(2): 143-159.

Rahman, M.O. and Hassan, M.A. 1995. Angiospermic Flora of Bhawal National Park, Gazipur (Bangladesh). *Bangladesh J. Plant Taxon.* **2**(1&2): 47-79.

Rahman, N., Sarker, M.A.A. and Uddin, S.N. 2018. One Hundred and Three new Additions to the Angiosperm Flora of Lawachara National Park, Bangladesh. *Bull. Bangladesh National Herb*. 6: 71–88.

Rahman, T. and Hossain, N. 2017. Study on Species diversity and distribution of rats in Birganj National Park, Dinajpur, Bangladesh. *The Journal of Zoology Studies* **4**(1): 12-16.

Rashid, M.H., Islam, S. and Kashem, S.B. 2019. Floristic diversity (Magnoliids and Eudicots) of Baraiyadhala National Park, Chittagong, Bangladesh. *Bangladesh J. Plant Taxon*. 25(2): 273-288.

Rashid, S.H. and Mia, M.M.K. 2001. Angiospermic Flora of Madhupur National Park, Tangail, Bangladesh. *Bangladesh J. Plant Taxon*. **8**(2): 63-82.

Siddiqui, K.U., M.A. Islam, Z.U. Ahmed, Z.N.T Begum, M.A. Hassan, M. Khondker, M. M. Rahman, S.M.H Kabir, M. Ahmad, A.T.A Ahmed, A.K.A Rahman and E.U. Haque (eds.).2007. *Encyclopedia of Flora and Fauna of Bangladesh*. Vol. 11. Angiosperms: Monocotyledons (Agavaceae -Najadaceae). Asiatic Society of Bangladesh, Dhaka, pp. 1-399.

SPAB (State of Protected Areas of Bangladesh). 2012. Bangladesh Forest Department, Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh. pp. 65-66.

The Plant List. 2013. *The Plant List, a working list of all plant species*. Version 1.1 < http://www.the-plantlist.org/>. Accessed on different times of 2018-2022.

TROPICOS 2010. Missouri Botanical Garden. < http://www.tropicos.org>. Missouri Botanical Garden, Saint Louis, Missouri, USA. Retrieved on different times of 2018-2022.

Uddin, M.Z. and Hassan, M.A. 2010. Angiosperm Diversity of Lawachara National Park (Bangladesh): A preliminary assessment. *Bangladesh J. Plant Taxon*. **17**(1): 9-22.

Uddin, S.B. and Rahman, M.A. 1999. Angiospermic Flora of Himchari National Park, Cox's Bazar. *Bangladesh J. Plant Taxon*. **6**(1): 31-68.

Uddin, S.N. and Hassan, M.A. (eds.). 2018. *Vascular Flora of Chittagong and the Chittagong Hill tracts*. Vol. 1-3. Bangladesh National Herbarium.

Uddin, S.N., Khan, M.S., Hassan, M.A. and Alam, M.K. 1998. An Annotated Checklist of Angiospermic Flora of Sitapahar at Kaptai in Bangladesh. *Bangladesh J. Plant Taxon*.**5**(1): 13-46.

Uddin, S.N., Khokan, M.E.H. and Khan, B. 2015. Discovery of Three Angiosperm new Records for Bangladesh from Lawachara National Park under Moulvibazar district. *Bull. Bangladesh National Herb*. **4**: 87-94.

Uddin, S.N. and Rahman, N. 2021. Floral Composition of Kaptai National Park under Rangamati District in Bangladesh. *Bull. Bangladesh National Herb*. **7**: 1-55.